



Method for operating electronic program guide

Publication number: CN1413018
Publication date: 2003-04-23
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Classification:
 - **International:** H04N5/445; H04N5/445; (IPC1-7): H04N5/445
 - **European:** H04N5/445M
Application number: CN20021041441 20020830
Priority number(s): KR20010063376 20011015

Also published as:

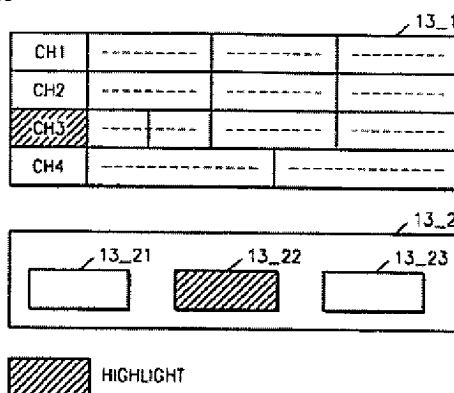
 US2003074663 (A1)
 KR20030031639 (A)

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Abstract not available for CN1413018

Abstract of corresponding document: **US2003074663**

An apparatus and method for operating an EPG is provided, using a displayed control panel that does not hide program cells including programming information. The apparatus and method for operating an EPG perform the operations of displaying a control panel which controls time information on a display screen that displays an electronic program guide, selecting the time information by highlighting a predetermined button on the displayed control panel, and selecting a channel from among a plurality of channels by highlighting another predetermined button to view programming information for that channel in accordance with the selected. Accordingly, viewers can search for TV programs more conveniently, making time and channel movements more quickly and precisely using a control panel that does not hide program cells that include programming information.



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[12] 发明专利申请公开说明书

[21] 申请号 02141441.6

[43] 公开日 2003 年 4 月 23 日

[11] 公开号 CN 1413018A

[22] 申请日 2002.8.30 [21] 申请号 02141441.6

[30] 优先权

[32] 2001.10.15 [33] KR [31] 63376/2001

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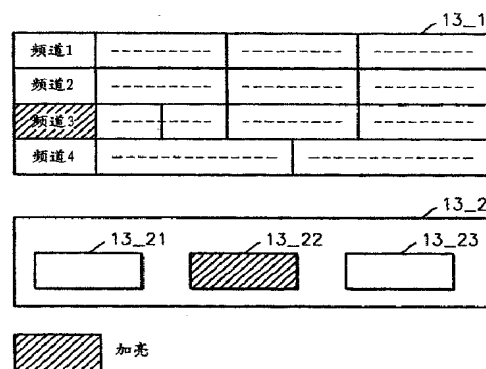
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权利要求书 1 页 说明书 3 页 附图 2 页

[54] 发明名称 用于操作电子节目指南的方法

[57] 摘要

提供一种用于操作 EPG 的方法，使用不会遮掩节目单元的控制面板来进行时间和频道移动。操作 EPG 的所述方法包括：显示用于控制在电子节目指南屏幕上的时间信息的控制面板；通过加亮在显示的控制面板上的预定键操作时间信息；并且通过加亮另一个预定的按键，移动从对应于操作的时间信息的多个频道中选择的频道。如上所述，使用不会遮掩节目单元的控制面板，更快和更精确地进行时间和频道移动，观众可以更方便地搜索 TV 节目。



1. 一种用于操作 EPG 的方法，包括：

(a)显示用于控制在电子节目指南屏幕上的时间信息的控制面板；

5 (b)通过加亮在显示的控制面板上的预定键，操作时间信息；以及

(c)通过加亮另一个预定的按键，移动从对应于操作的时间信息的多个频道中选择的频道。

2. 如权利要求 1 所述的方法，其中动作(b)的加亮的时间信息和动作(c)的加亮的频道移动被同时显示用于在显示控制面板和电子节目指南的屏幕
10 上，并且时间信息和频道移动使用不同按键被操作。

3. 如权利要求 1 所述的方法，其中使用在动作(a)中显示的控制面板操作低于参考值的时间移动、高于参考值的时间移动、数据移动、和到当前时间的移动。

4. 如权利要求 1 所述的方法，其中在动作(a)显示的控制面板通过输入
15 预定键被开启或关闭。

用于操作电子节目指南的方法

5 技术领域

本发明涉及一种用于操作 TV 的方法，更具体地说，涉及一种用于操作 EPG(Electronic Program Guide 电子节目指南)的方法，它通过使用控制面板允许容易的时间和频道移动，而不会遮掩节目单元。

10 背景技术

近来，电台已经开始提供 EPG，以允许 TV 观众在 TV 上寻找节目指南，来代替电视导报而不使用控制面板，该控制面板不会遮掩节目单元。EPG 是数字广播的特征，它按照如下来使用。数字广播是与根据 PSIP(节目和系统信息协议)标准压缩的系统信息和节目信息一起，将图像流和声音流压缩成数字信息。

目前，通过从提供有图像信息和声音信息的数据解码与节目相关的信息，TV 观众被告知用 EPG 显示在屏幕上的与节目相关的信息。另外，根据 PSIP，用户被告知最多 16 天的节目信息。在 EPG 中，节目信息被列在由频道和时间组成的表中。

20 通常，EPG 在垂直轴上显示频道，并在水平轴上显示时间，以为用户提供数据和频道的任意的结合。如果用于输入的装置包括 4 个方向键(上，下，左，右)，加亮区在节目单元被移动。用户使用上和下键每次移动一个频道，并且使用频道键移动一页。当用户想一次移动好几百个频道时，用户直接输入数字。然而，用传统的方法，当用户在时间轴移动时，没有其他选择，只能使用方向键一次移动 30 分钟。现今，由于存储器的增大，提前输入 16 天的信息是很普通的。如果用户想要获得提前 10 天的 EPG 信息，必须一次移动很多，但是在用于操作 EPG 的传统方法中，这是非常耗时的并且有时引起麻烦的问题。

30 发明内容

本发明的目的是提供一种用于操作 EPG(电子节目指南)的方法,它允许提供使用控制面板很容易的时间和频道移动,而不会遮掩节目单元。

为了完成本发明的目的,提供一种用于操作 EPG 的方法,包括(a)显示控制面板,它控制在电子节目指南屏幕上的时间信息;(b)通过加亮在显示的控制面板上的预定按键操作时间信息;以及(c)通过加亮另一个预定的按键,移动从对应于操作的时间信息的多个频道中选择的频道。

最好,动作(b)的加亮的时间信息和动作(c)的加亮的频道移动被同时显示在屏幕上,该屏幕显示控制面板和电子节目指南,并且使用不同的按键操作时间信息和频道移动。时间移动低于参考值,时间移动高于参考值,数据移动,和到目前时间的移动可以使用在动作(a)显示的控制面板被操作。显示在动作(a)的该控制面板可以通过输入预定的键被开启和关闭。

附图说明

通过结合附图对本发明的优选实施例进行详细描述,本发明的上述目的和优点将会变得更加清楚,其中:

图 1 是说明用于操作 EPG 的设备结构的方框图。

图 2 至 4 是说明用于描述根据本发明操作 EPG 的方法的显示设备的横截面视图。

具体实施方式

通过借助附图将详细描述本发明。

图 1 是说明操作 EPG 的设备的结构的方框图,它包括:远程接收器 10,用于输入信息;调谐器 11,用于调谐通过天线接收的信号;EPG 解码器 12,用于将调谐器 11 调谐的信号分成音频/视频信号和附加信息数据,并将其解码;显示单元 13,显示 EPG 解码器 12 解码的信号;控制器 14,根据远程接收器 10 的信号控制调谐器 11 和 EPG 解码器 12,并以对应于从 EPG 解码器 12 输出的数据的控制信号将其输出。

图 2 是说明显示 EPG 信息的节目单元 13-1 和控制面板 13-2 的显示的视图。图 3 是控制面板 13-2 的详细的视图,以及图 4 是说明按照在一个显示器上操作不同键如何进行时间移动和频道移动的视图。

参考图 1 至 4, 下面将详细描述本发明。用户使用远程接收器 10 选择由广播节目或外部供应商提供的节目。然后, 远程接收器 10 输出对应于选择信号的信号。控制器 14 根据远程接收器 10 的信号, 输出用于调谐由电台或外部节目供应商提供的节目的控制信号。

- 5 调谐器 11 根据控制器 14 的控制信号, 从通过天线(未示出)接收的信号中将其调谐成电台或外部节目供应商的信号, 并输出所得到的信号。

EPG 解码器 12 将由调谐器 11 调谐的信号分成音频/视频信号和附加信息数据, 并解码和输出它们。

- 10 显示单元 13 在图 2 的节目单元 13-1 显示由 EPG 解码器 12 解码的 EPG 信号。如果用户通过远程控制器(未示出)输入控制面板的开启/关闭键, 显示单元 13 显示与图 2 所示节目单元 13-1 一起显示控制面板 13-2。

节目单元 13-1 根据频道和时间显示 EPG 信息, 并使用远程控制器的上和下键操作它。

- 15 控制面板 13-2 被显示, 以单独操作在显示的 EPG 信息中的时间信息。
20 控制面板 13-2 包括开启/关闭维护面板 13-21、时间控制器 13-22 和天控制器 13-23。控制面板 13-2 使用远程控制器的左和右键操作。所述开启/关闭维护面板 13-21 显示或清除在显示单元 13 上的控制面板 13-2。该时间控制器 13-22 允许例如当前时间移动、短时间(例如 30 分钟)移动或长时间(例如 3 或 6 个小时)移动的时间控制。由用户设置由时间控制器 13-22 设置的参考时间, 低于参考时间的时间被认为是短时间, 而高于参考时间的时间被认为是长时间。天控制器 13-23 起日期控制器的功能, 并且如果用于搜索 EPG 信息的日期被输入或移动, 对应于 EPG 信息的 EPG 信息可以被搜索。

- 25 节目单元 13-1 和控制面板 13-2 可以通过同时使用远程控制器的上和下, 以及左和右键被操作。参考图 4, 时间和日期可以通过加亮左和右键被控制, 以及频道可以通过加亮上和下键被控制。

应该注意, 本发明并不局限于上述的优选实施例, 并且在不脱离本发明的精神和范围的情况下, 本领域的技术人员可以对其进行变动和修改。如上所述, 使用不会遮掩节目单元的控制面板, 更快和更精确地进行时间和频道移动, 观众可以更方便的搜索 TV 节目。

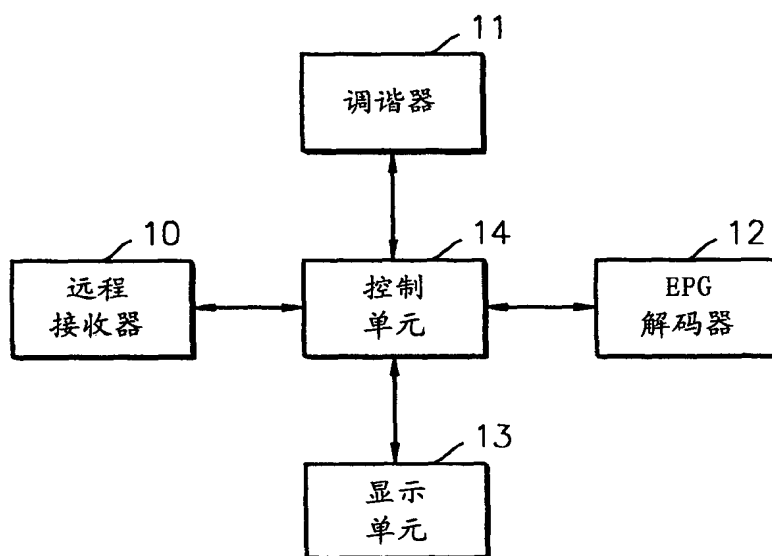


图 1

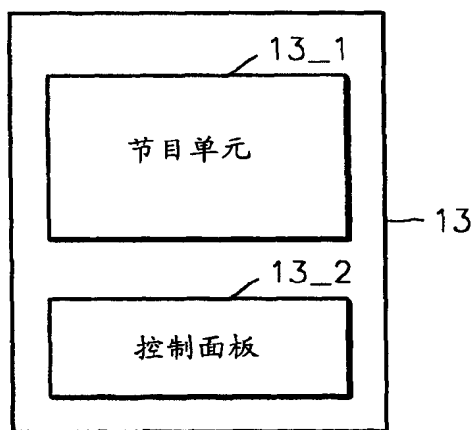


图 2

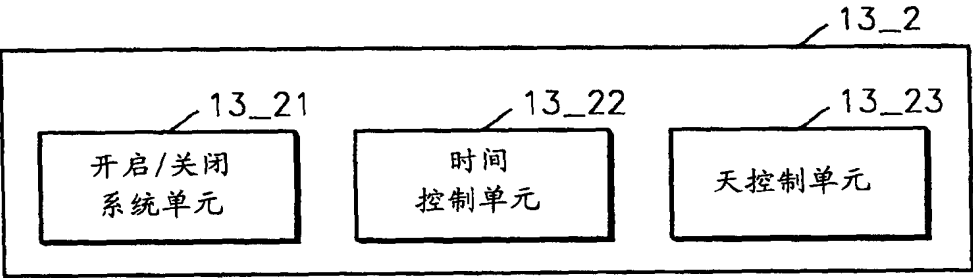


图 3

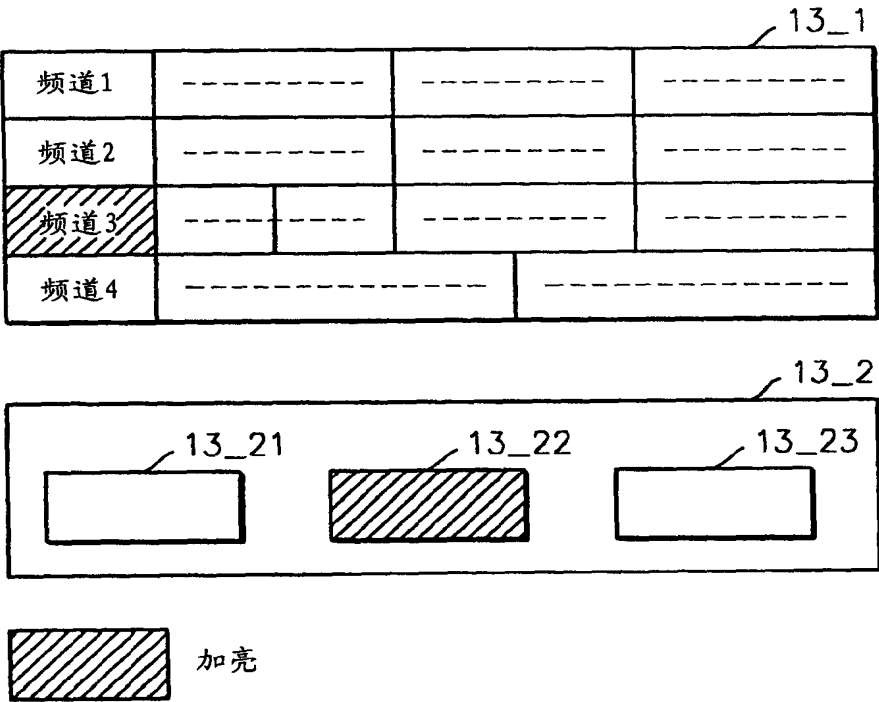


图 4



US 20030074663A1

(19) **United States**(12) **Patent Application Publication**
Pan(10) **Pub. No.: US 2003/0074663 A1**(43) **Pub. Date: Apr. 17, 2003**(54) **APPARATUS AND METHOD FOR
OPERATING AN ELECTRONIC PROGRAM
GUIDE**(52) **U.S. Cl. 725/39; 725/52; 725/61**(76) **Inventor: Young-hwan Pan, Suwon-si (KR)**(57) **ABSTRACT**

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Oct. 15, 2001 (KR) 2001-63376

Publication Classification(51) **Int. Cl.⁷ G06F 3/00; H04N 5/445;
G06F 13/00**

An apparatus and method for operating an EPG is provided, using a displayed control panel that does not hide program cells including programming information. The apparatus and method for operating an EPG perform the operations of displaying a control panel which controls time information on a display screen that displays an electronic program guide, selecting the time information by highlighting a predetermined button on the displayed control panel, and selecting a channel from among a plurality of channels by highlighting another predetermined button to view programming information for that channel in accordance with the selected. Accordingly, viewers can search for TV programs more conveniently, making time and channel movements more quickly and precisely using a control panel that does not hide program cells that include programming information.

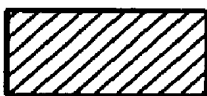
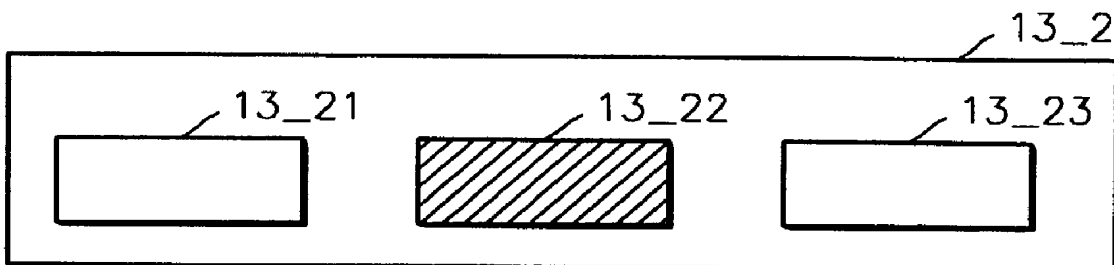
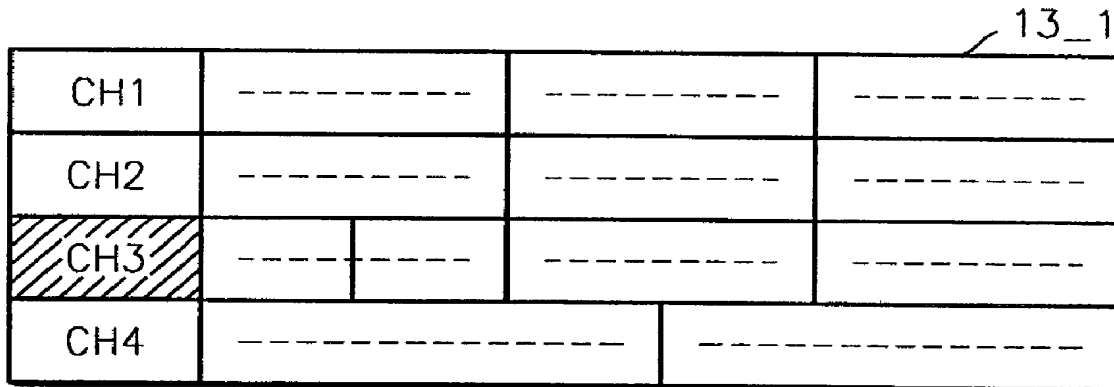
**HIGHLIGHT**

FIG. 1

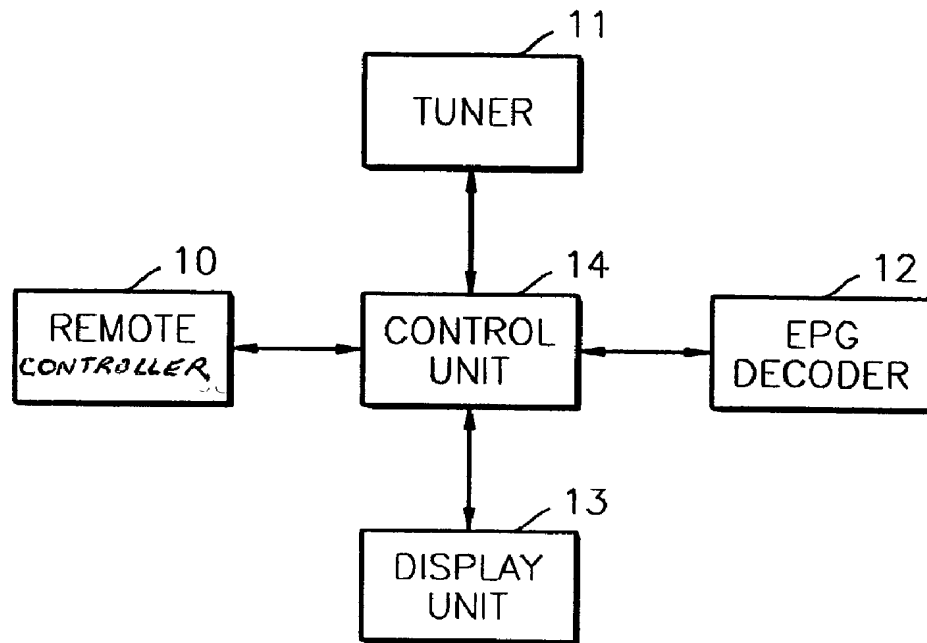


FIG. 2

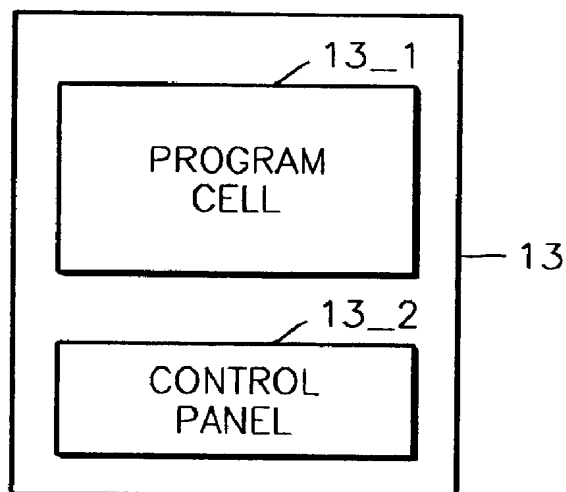


FIG. 3

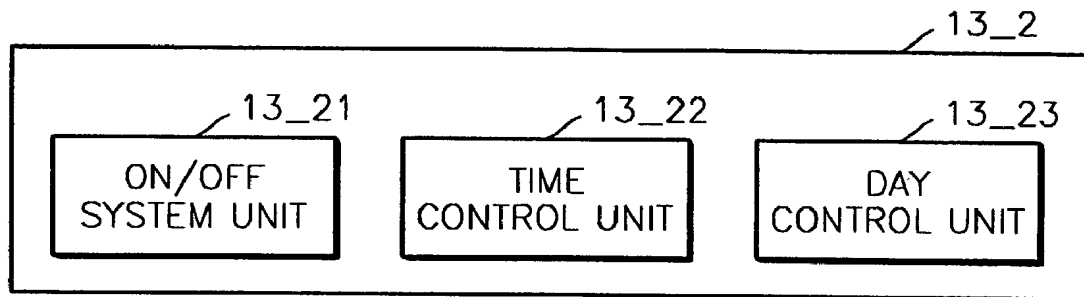
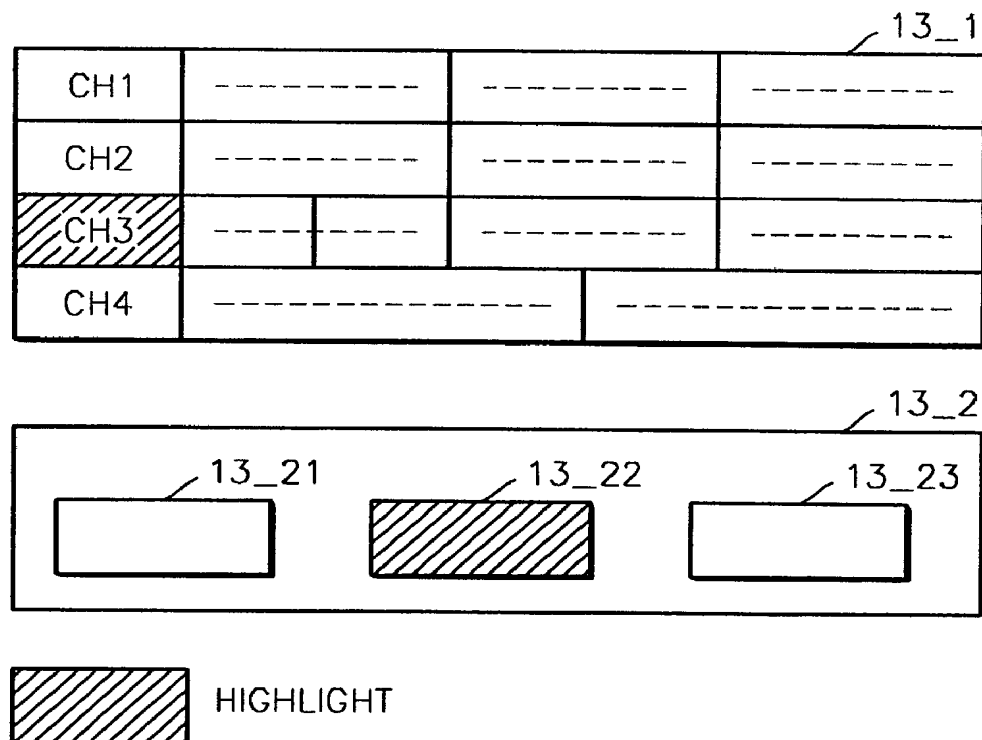


FIG. 4



APPARATUS AND METHOD FOR OPERATING AN ELECTRONIC PROGRAM GUIDE

[0001] This application claims benefit under 35 U.S.C. § 119 from Korean Patent Application No. 2001-63376, filed on Oct. 15, 2001, the entire content of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to an apparatus and method for operating an on-screen electronic program guide (EPG) of a television receiver. More particularly, the present invention relates to an apparatus and method for an operating an EPG which allows for easy scanning of programming time and channel information through the use of a control panel displayed on the display screen of the television receiver along with the EPG, without unnecessarily hiding program cells of the EPG which contain programming information.

[0004] 2. Description of the Related Art

[0005] Recently, broadcasting stations have begun to provide EPGs to allow TV viewers to find program guides on the television screen, instead of in newspapers or other printed program guides. An EPG is a common feature of digital broadcasting. In digital broadcasting, an image stream and a sound stream are compressed into digital information, along with system information and program information compressed in accordance with the PSIP (Program and System Information Protocol) standards.

[0006] A television receiver capable of receiving digital broadcasts decodes the program-related information from data provided with the image information and sound information, and displays an EPG based on that information on the television receiver screen. Typically, a user can access such program information for a maximum of 16 days in advance according to the PSIP standards. In the EPG, the program information is typically listed in a table organized by channel and time.

[0007] In general, the EPG shows channels on the vertical axis and time on the horizontal axis, to provide the user with any combination of data and channel. If a control device, such as a remote control device, includes four directional keys (up, down, left, right), the user can manipulate those keys to highlight, for example, a channel of interest in a displayed program cell. For example, the user can scan the EPG one channel at a time using the up and down keys, and can move by a page at a time using the channel key. When the user wants to move hundreds of channels at a time, the user enters the channel number directly. However, in a conventional method, when the user moves on the time axis, there is no choice but to move by 30 minutes at a time using the directional keys. As stated above, it is common for a television receiver to store programming information up to 16 days in advance due to the increase of memory in the television receiver. Hence, if the user wants to obtain EPG information ten days in advance, it is necessary for the user to manipulate the control keys on the control device to scroll through the EPG in 30 minute intervals, which is a very time-consuming and complicated process. Also, these program guides hide the program cells when the user controls the display screen to display a virtual control panel.

SUMMARY OF THE INVENTION

[0008] It is an object of the present invention to provide an apparatus and method for operating an electronic program guide (EPG), which allows easy scanning of programming time and channel information through the use of a displayed control panel which does not hide program cells that include EPG information.

[0009] To substantially accomplish this and other objects, the present invention provides an apparatus and method for operating an EPG. The apparatus and method perform the operations of displaying a control panel which controls time information on an electronic program guide screen, selecting time information by operating a predetermined button on the displayed control panel, and operating another predetermined button to select a channel from among a plurality of channels for viewing programming information for that channel in accordance with the selected time information.

[0010] Preferably, the time information is selected by highlighting the predetermined button and the channel is selected by highlighting the other predetermined button. Also, the highlighted time information and the highlighted channel are displayed at the same time on the screen which displays the control panel and the electronic program guide, and the time information and the channel programming information are selected and scanned using different buttons. A time interval below a reference value, a time interval above the reference value, a date, and a current time may be selected using the displayed control panel. The display of the control panel may be turned on and off by controlling a predetermined key or keys.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The above objects and advantages of the present invention will become more apparent by describing in detail a preferred embodiment thereof with reference to the attached drawings in which:

[0012] **FIG. 1** is a block diagram illustrating an example of components of a device for operating an EPG;

[0013] **FIGS. 2 through 4** are views illustrating examples of a display device for describing a method for operating an EPG according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0014] An embodiment of the present invention will now be described with reference to the accompanying drawings.

[0015] **FIG. 1** is a block diagram illustrating an example of components of a device, such as a television receiver, for displaying and operating an EPG. The device includes a remote controller **10** for inputting information, a tuner **11** for tuning a signal received through an antenna (not shown), and an EPG decoder **12** which separates the signals tuned by the tuner **11** into an audio/video signal and additional information data and decodes those signals. The device further includes a display unit **13** which displays the signals decoded by the EPG decoder **12**, and a controller **14** which controls the tuner **11** and the EPG decoder **12** according to the signals provided by the remote controller **10** by outputting a control signal indicating the desired data to be output from the EPG decoder **12**. The tuner **11** and EPG decoder **12**

operate in accordance with this control signal to enable the EPG decoder 12 to output the desired data as discussed below.

[0016] FIG. 2 is a view illustrating the display unit 13 displaying a program cell 13_1 that includes EPG information and a control panel 13_2. FIG. 3 is a detailed view of an example of the control panel 13_2, and FIG. 4 is a view illustrating an example of how a user can scan programming time and channel information through the use of different keys on one display.

[0017] Referring to FIGS. 1 through 4, an embodiment of the present invention will be described in detail. The user uses the remote controller 10 to select a program from among programs which are provided by a broadcasting station or an external provider, by manipulating one or more keys on the remote controller 10 to cause the remote controller 10 to output a signal corresponding to the selected program. The controller 14 receives the signal provided by the remote controller 10, and outputs a control signal for tuning to the program provided by broadcasting stations or external program providers according to the signal provided by the remote controller 10. The tuner 11 then tunes to the signals of the broadcasting stations or the external program providers from among the signals received through the antenna (not shown) according to the control signal from the controller 14, and outputs those tuned signals to the EPG decoder 12.

[0018] The EPG decoder 12 separates the signals which are tuned by the tuner 11 into an audio/video signal and additional information data, and decodes and outputs those signals. The display unit 13 displays the EPG signal decoded by the EPG decoder 12 in the program cell 13_1 as shown in FIG. 2. If the user inputs the on/off key of the control panel through the remote controller 10 (see FIG. 1), the display unit 13 displays the control panel 13_2 along with the program cell 13_1 as shown in FIG. 2.

[0019] The program cell 13_1 displays the EPG information according to programming channel and time, and a user can scan the programming for different channels and times by using, for example, the up and down keys of the remote controller 10 or appropriate keys on the television receiver. The control panel 13_2 is displayed to enable the user to change the time information without having to scroll through the displayed EPG information. The control panel 13_2 further includes an on/off operator 13_21, a time controller 13_22 and a day controller 13_23. The user can operate the control panel 13_2 by using, for example, the left and right keys of the remote controller 10, or the appropriate keys on the television receiver. The user can use the remote controller 10, for example, or the appropriate keys on the television receiver, to control the on/off operator 13_21 to display or clear the control panel 13_2 on the display unit 13 as desired. The time controller 13_22 allows the user to select the size of the time intervals that will be used to scroll through the EPG information displayed in the program cell 13_1. For example, the time controller 13_22 can be set by the user to enable a user to view EPG information for the current time. The time controller 13_22 can further be set by the user to enable the user to scroll through the EPG information at short time intervals (e.g., 30 minute intervals) or long time intervals (e.g., 3 or 6 hour intervals). The reference time used by the time controller 13_22 is set by the

user, and a time interval below the reference time is considered a short time interval, while a time above the reference time is considered a long time interval. The day controller 13_23 functions as a date controller, which enables a user to select a date for searching EPG information displayed in the program cell 13_1. If the user selects a particular date using the day controller 13_23, the user can view the EPG information displayed in the program cell 13_1 for that selected date.

[0020] As can be appreciated from the above, the program cell 13_1 and the control panel 13_2 can be operated by using, for example, the up and down keys and the left and right keys of the remote controller (or other appropriate keys on the remote controller or on the television receiver itself) at the same time. Referring to FIG. 4, in this example, the time and the day are controlled by highlighting the left and right keys and the channel is controlled by highlighting the up and down keys.

[0021] It is noted that the scope of the present invention is not limited to the preferred embodiment described above, and it is apparent that variations and modifications by those skilled in the art can be affected with the spirit and scope of the present invention. As described above, viewers can search for TV programs more conveniently, making time and channel movements more quickly and precisely, using a control panel that does not hide program cells.

What is claimed is:

1. A method for operating an EPG, comprising:

displaying a control panel which controls time information on a display screen adapted to display an electronic program guide;

selecting the time information by operating a predetermined button on the displayed control panel; and

operating another predetermined button to select a channel from among a plurality of channels for viewing programming information for that channel in accordance with the selected time information.

2. The method of claim 1, wherein the selected time information and the selected channel are displayed at the same time on the display screen which displays the control panel and the electronic program guide.

3. The method of claim 1, wherein the selecting step sets the time information as one of the following: a time interval below a reference value, a time interval above the reference value, a date, and a current time.

4. The method of claim 1, further comprising the step of operating a displayed button to turn the control panel on and off.

5. The method of claim 1, wherein the selecting step is performed by highlighting the predetermined button on the display screen, and the operating step is performed by highlighting the other predetermined button on the display screen.

6. The method of claim 1, wherein the operating step includes scrolling through displayed programming information for the selected channel at time intervals indicated by the selected time information.

7. An apparatus for operating an EPG, comprising:

a display, adapted to display a control panel which controls time information and an electronic program guide; and

a controller, adapted to enable a user to operate a predetermined button on the displayed control panel to select the time information, and to enable the user to operate another predetermined button to select a channel from among a plurality of channels for viewing programming information for that channel in accordance with the selected time information.

8. The apparatus of claim 7, wherein the display is adapted to display the selected time information and the selected channel concurrently.

9. The apparatus of claim 7, wherein the time information is set as one of the following: a time interval below a reference value, a time interval above the reference value, a date, and a current time.

10. The apparatus of claim 7, wherein the controller is further adapted to enable the user to operate a further button displayed on the display to turn the control panel on and off.

11. The apparatus of claim 7, wherein the controller is further adapted to highlight the predetermined button on the display screen when the predetermined button is selected, and to highlight the other predetermined button on the display to when the other predetermined button is selected.

12. The apparatus of claim 7, wherein the controller is further adapted to enable the user to scroll through displayed programming information for the selected channel at time intervals indicated by the selected time information.

13. A computer-readable medium of instructions for controlling a device to operate an EPG, comprising:

- a first set of instructions, adapted to control a display of the device to display a control panel which controls time information and an electronic program guide;

- a second set of instructions, adapted to control the device to select the time information in response to operation of a predetermined button on the displayed control panel; and

- a third set of instructions, adapted to control the device to select a channel from among a plurality of channels for viewing programming information for that channel in accordance with the selected time information in response to operation of another predetermined button.

14. The computer-readable medium of instructions of claim 13, wherein the selected time information and the selected channel are displayed at the same time on the screen which displays the control panel and the electronic program guide.

15. The computer-readable medium of instructions of claim 13, wherein the second set of instructions is adapted to control the device to set the time information as one of the following: a time interval below a reference value, a time interval above the reference value, a date, and a current time.

16. The computer-readable medium of instructions of claim 13, further comprising a fourth set of instructions, adapted to control the display to display a button which can be operated to turn the control panel on and off.

17. The computer-readable medium of instructions of claim 13, wherein the second set of instructions is further adapted to control the display to highlight the predetermined button on the display screen when the predetermined button is operated, and the third set of instructions is further adapted to control the display to highlight the other predetermined button on the display screen when the other predetermined button is operated.

18. The computer-readable medium of instructions of claim 13, wherein the third set of instruction is further adapted to control the device to enable the user to scroll through displayed programming information for the selected channel at time intervals indicated by the selected time information.

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